1991

Gender Roles and Home Computer Use by Children

Trelles Whitfield D'Alemberte
College of William & Mary - Arts & Sciences

Gender Roles and Home Computer Use by Children

A Thesis

Presented to

The Faculty of the Department of Sociology

The College of William and Mary in Virginia

In Partial Fulfillment

Of the Requirements for the Degree of

Master of Arts

---

by

Trelles W. D'Alemberte

1991

APPROVAL SHEET

This thesis is submitted in partial fulfillment of

The requirements for the degree of

Master of Arts

Trelles W. D'Alemberte

Trelles W. D'Alemberte

Approved, September 1991

Satoshi Ito

Satoshi Ito

David P. Aday, Jr.

David P. Aday, Jr.

Gary A. Kreps

Gary A. Kreps

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

I wish to express my appreciation to the members of my thesis committee for their assistance and thoughtful critique. I would also like to thank Dr. Michael Faia for providing the raw data for the study and Mr. David Reed for his help with the computer. My greatest appreciation goes to Ms. Fredi Jackson, my fellow sociology graduate students and my family.

LIST OF TABLES

TABLE PAGE

ABSTRACT

This study presents a descriptive analysis of home computer use by children. This study uses data from the Current Population Survey of 1984. This survey asked children questions concerning their computer use patterns.

Previous research of gender roles and computer use suggests that there will be a substantial difference between the computer use patterns of male and female children. Based on this research, and the questions asked in the Current Population Survey, the following three hypotheses are formulated: boys are more likely to use the home computer than are girls; among computer users, boys will use the computer more frequently than girls; and boys and girls will differ by types of computer use.

The results suggest that there is a relationship between gender and home computer use and it does support the three hypotheses. The strength of the three relationships between gender and home computer use are modest.

GENDER ROLES AND HOME COMPUTER USE BY CHILDREN

INTRODUCTION

This research is a descriptive study of children's patterns of home computer use. It is hypothesized that the use of computers in the home will be different for boys and girls. Two feminist theories of gender identity, socialization and cognitive development, will be used to describe the acquisition of gender roles. The recent explosion of computer use in our homes, schools, and jobs, has been matched by a growing amount of social science literature describing the effects of this new technology. This literature has focused on different aspects of computer use. Research on the gender gap in computer usage provides evidence that gender roles are affecting computer use. The current study test three hypotheses about the extent of a gender gap in home computer use,using data from the Current Population Survey of 1984.

STATEMENT OF THE PROBLEM

This research will examine home computer use patterns of children, while computer exposure is still fairly limited. The gender disparity in computer use has been documented by previous research of gender role theories and computer use

research. It is the aim of this project to discover and describe the home computer use patterns of children.

The computer has been gender-typed as the province of males. The basis of this gender typing is the belief that computers are built and operated around science and mathematics, which have traditionally been associated with men (Hawkins, 1985:166; Nye, 1991:94; Wessells, 1990:244). The association of men and mathematics and science is not based on biological differences between males and females. The difference is based in the socialization of appropriate gender roles for males and females (Hawkins, 1985:166). This research will attempt to describe gender differences in home computer use.

There will be three hypotheses tested. The first hypothesis is that boys are more likely to use the home computer than are girls. The second hypothesis is that among computer users, boys will use it more frequently than girls. The third hypothesis is that boys and girls will differ on types of computer use. Four types of uses are delineated by the Current Population Survey: video games, learning to use the computer, school assignments, and other uses. The third hypothesis will be further specified as follows: hypothesis 3A for video game use, hypothesis 3B for learning to use the computer, hypothesis 3C for school assignments, and hypothesis 3D for other uses.

The impact of other environmental forces also will be

tested using control variables. These control variables include the child's age, race, and family income. Two other control variables, computer use at school and purchase year of home computer, will be used to determine the impact of previous computer use.

The first two hypotheses, boys' higher baseline use and higher frequency of use, are supported by previous research findings. This research shows that boys have higher amounts of use and greater frequency of use than girls. These patterns reflect the greater degree of male identification with the computer (Wilder, Mackie, and Cooper, 1985). The value of computer literacy in young male peer groups seems to be great. Linda Lewis, a professor of education at the University of Connecticut, believes that "Computers have become the intellectual equivalent of sports for boys"(The New York Times Feb. 13, 1989).

The final hypothesis focuses on differences in the types of uses of the computer. This hypothesis relates to the four areas of use for children as demarcated by the Current Population Survey. These four areas of use include video games, school assignments, learning to use the computer, and other uses.

Hypothesis 3A will evaluate the relationship between gender and use of video games. Based on earlier research it is predicted that boys will use the computer to play video games more than will girls. This assertion is supported by

survey research done by Wilder, Mackie, and Cooper (1985), which analyzed a sample of children from grades kindergarten through the twelfth grade. This study described the children's liking and gender perceptions on appropriateness of computer use for different purposes for boys and girls. The results were conclusive: male children like video games more than female children. The study also found both male and female children believed video games were more appropriate for boys than girls.

This study is supported by other research that suggests that video games are the domain of boys. The influence of peer group association is viewed by many researchers as having a large impact on the gender-typing of video games. For boys who cannot compete athletically with their peers, video games often provide another means of acceptance. Those boys who are champions of video games have a social advantage in their peer groups over those boys who are unable to master the games (Wilder, Mackie, and Cooper, 1985:219).

Video games are perceived to be more oriented toward boys. In fact, Ware and Stuck document the advertisers who have targeted boys as the users of these games (1984). This targeting is supplemented with the forms and sounds used by the video game programs. These forms and sounds are more male than female oriented. For example, most games have aggressive characteristics such as loud sounds, bombs, devastation, hammering, and hitting. The games even have names that are

targeted at male users. Examples of these names include: "Destroy All Subs", "Submarine Attack", and "Space Wars"(Hess and Miura, 1985:200). These have been identified as more appealing to boys than to girls (Ware and Stuck, 1985:205-208).

Hypothesis 3B proposes that the computer will be used for school assignments more often by boys than by girls. This hypothesis is supported by research done by Jan Hawkins (1985). Her argument is based on the observation that the concept of the computer is often aligned with the categories of science, mathematics, and technology. These categories have often excluded women. According to Hawkins this exclusion, in and out of the educational system, extends to include computer use. As stated above there is no biological explanation for the stereotype of mathematics and science being the domain of men. The learned gender association is seen as the basis for the link between males and mathematics and science. This learned gender association is reinforced by other observed gender appropriate actions in the home, school, and by peers. The male child learns and is taught to believe that it is part of their role to be math capable and progress oriented. As a result, male children learn to believe that they are more qualified to use the computer than their female counterparts (Chetwynd, 1978:18-27; Hawkins, 1985).

Hypothesis 3C proposes that learning to use the computer also will have gender differences. This argument is similar

to the previous discussion of school assignment computer use. The computer has been gender typed to males. For this reason, males are more likely to make the effort to learn to use the computer. This assertion is based on research done by Wilder, Mackie, and Cooper (1985) and Hawkins (1985). These articles both assert that male and female children most readily associate the learning aspects of the computer with male children. Thus, it is expected that female children will be discouraged from learning to use the computer.

The fourth use of the computer is classified by the Current Population Survey as, "other uses"(CPS 1984). The use pattern differences in "other uses" will be hypothesis 3D. This area connotes a more gender neutral category for computer usage. There are "other uses" which could be more flexible to diverse learning styles. Possible other uses include word processing, music editors, and graphic or art uses (Hawkins, 1985).

DEFINITION OF TERMS

The current study begins with definitions of the key terms of the research. The term "Role" is defined as an active process in Jonathan Turner's summary of Ralph Turner's role theory (1986). In this process, people make and take their roles in three ways. First, humans encounter a culture that has a flexible framework. Within this framework humans must create their roles. The second aspect of the role

involves the discovery and understanding of roles that are played by others. Through this process, people perceive the actions of others in the context of the role that they are playing. The third aspect in the role taking and making process is the transmission of cues in social situations concerning the role that one is playing. This gives others markers for interpreting the role that is being played. The process of role taking and making is the basis of all human interaction. It gives people social cues as to the appropriate action in any social situation (J. Turner, 1986:371-372).

Socialization is the process that teaches individuals the values and norms of their society. Socialization of gender roles begins at the moment of birth and continues throughout the individual's life (Renzetti and Curran 1989:61). Socialization can be effected through rewards and punishments of behaviors which correspond or diverge from conventional conceptions of the gender appropriate behavior. Socialization also occurs through indirect methods of indoctrination into society's gender role system. The books children are given to read, the clothes they are given to wear, and the toys they are given to play with are examples of the indirect socialization of children to certain gender roles (Weitzman, 1972).

Much of the social science literature treats sex roles and gender roles as being the same. For the purposes of this

research the following distinction between the two will be employed. Sex roles are those behaviors which are determined by biological facts of physiology. Characteristics which would be classified as sex role effects include: menstruation, lactation, erection, and seminal ejaculation. In contrast, gender roles are the cultural or social definitions of feminine and masculine and sex-specific behavior. Gender roles are socially constructed differences within a given culture based on the actual or presumed biological sex of the individuals (Lipman-Blumen, 1984:1-2). The social science literature often refers to sex roles, but implies the above conceptual definition of gender roles. For the purposes of this research, all material that implies the conceptualization of gender roles will be classified as such.

GENDER ROLE RESEARCH

Since the 1960's feminist sociology has been the dominant paradigm in gender role research. The feminist paradigm recognizes the importance of learning in the acquisition of gender. The explanation of learning gender is predominantly represented by two theories, cognitive development and socialization. These theories are not mutually exclusive. In fact, it appears that both contribute to unravelling the process of gender learning. By explaining the central aspects of both socialization and cognitive development theories, this

study will describe the theoretical background of gender acquisition. Describing these theories of gender acquisition will provide the context for the current study. In the current study home computer use will be compared on the basis of the gender of the child.

Socialization Theory

Socialization theory combines the sociological theories of symbolic interaction and social learning (Chafetz, 1990:25). The theory of symbolic interaction is rooted in the work of G.H. Mead. Mead believed that the process of interpreting our social environment was based on our ability to imagine ourselves in other social roles. Mead believed that we learn to act on others' social roles through symbols that are always present in our social environment. Thus, symbolic interactionism focuses on the relationship between self and society (Turner, 1986:333-354).

The theory of social learning has been developed by Mischel (1966), Bandura and Walters (1963), Lynn (1969) and others (cf. Basow, 1986:111-112). Social learning theory emphasizes the child's environment. Indirect learning occurs through observation by the child and through modeling behavior of others within their social world (Basow, 1986:111-112). The learning process is based around the principles of rewards and punishments.

With a combination of both symbolic interaction and social learning theories, socialization theory creates a multi-dimensional perspective on gender acquisition. Socialization theory posits the importance of "significant others" as the agents who teach others, usually children, gender appropriate behavior (Cahill, 1983, Constantinople, 1979). Socialization theory subscribes to the view that adults deliberately teach children appropriate gender roles. Children are not viewed as passive receptors, but as actors who interpret the cultural and social value of learning society's gender system (Basow, 1986:118).

The socialization process begins at birth or before. When children are born typically they are identified immediately as boys or girls. They are wrapped in blue or pink blankets accordingly (Freeman, 1975:108). Research has shown that parents treat their infants differently according to their sex. According to one survey, ninety percent of infants in a shopping mall were dressed in gender appropriate clothing (Shakin, 1985:955). This sends an implied message to others as to the sex of the child. This message is enhanced by the action of placing the child in the gender role which is appropriate for his or her sex. As Madeline Shakin explains: "We know ... that when someone interacts with a child and a sex label (clothing) is available, the label functions to direct behavior along the lines of traditional (gender) roles" (Shakin, 1985:956). Other blatant indicators of sex, such as

home decor and toys, channel children toward socially appropriate gender roles. Rheingold and Cook have studied the environment in which children are reared. Girls' rooms were predominantly decorated in traditional feminine style. This genre of home decor included lace, flowers, and pastel colors. In contrast, boy's rooms were decorated with predominantly animal and military themes, which are considered traditionally masculine (1975).

Toys play a major role in the early gender socialization of children. Researchers have found that toys are given to children on the basis of their sex (Miller, 1987:485 and Peretti and Sydney, 1985). Girls are given toys, such as dolls, that socialize them into their traditional gender roles, such as nurturer (i.e. motherhood). Boys also are provided with toys that perpetuate traditional gender roles. Toys for boys are more likely to encourage exploration, manipulation, invention, competition, and aggression. The skills that are learned from playing with these toys create a gap between girls and boys (Miller, 1987:485 and Peretti and Sydney, 1985). These differences have been linked to the development of different abilities found in girls and boys.

As children age, they continue to experience gender socializing agents. From birth, parents and children form a primary relationship. This relationship allows parents the opportunity to instill values and norms. These values and norms include the conception of the socially appropriate

gender for the child and the role that it accompanies.

Influences outside the home begin to shape the child's socialization as children go to school. Teachers become important socializers outside the home. Researchers have shown that teachers unknowingly treat boys and girls differently in the classroom (Sadker and Sadker,1985; Fagot,1984; Honig and Wittner, 1982; cf. Basow, 1986:125). The classroom itself is often sex segregated, with boys on one side and girls on the other. There are often different assignments for boys and girls. Boys are more likely to be given tasks that require independence and organization. Tasks that are more menial usually are given to girls (Renzetti and Curran, 1989:86-86). Also, researchers have found that teachers give boys more attention than girls. This attention includes both positive and negative reinforcement (Sadker and Sadker, 1985:56)

As children move into adolescence, peers also become primary agents of socialization. Sports activities become a fundamental part of "fitting in" for boys of the same age group (Renzetti and Curran, 1989:89). These activities teach traits that are valued as stereotypically male. According to Renzetti and Curran these traits include "skills and values (such as): aggression, endurance, competitiveness, self-confidence, and teamwork"(1989:89). It is theorized that this leads to the adoption of these skills and values. The adoption of a stereotypical conception of masculine traits

contributes to the child's conception of his gender role in society (Renzetti and Curran, 1989:89).

Adolescent girls are socialized equally to follow stereotypically feminine behavior. Having a boyfriend gains the most respect from girls' peer groups. In fact, activities that are seen as unfeminine, such as athletics, are behaviors which are deemed inappropriate. Girls who reject this peer socialization could be the victims of further sanctions, such as name calling (i.e.tomboys) (Renzetti and Curran, 1989:90; Basow, 1986:126-127). Negative sanctions reinforce stereotypical feminine gender roles which girls have been consistently exposed to throughout their lives.

Socialization does not occur only with the three primary agents parents, teachers, and peers. Other major socialization agents include: religion, the educational system, the political system, the legal system, the economic system, and media. All of these agents combine to mold the child into what is considered by society the proper gender role (Basow, 1986:129-158; Renzetti and Curran, 1989:107-201).

Cognitive Development Theory

Cognitive development theory is based on the work of psychologists Jean Piaget and Lawrence Kohlberg. This theory sees children as active participants in the process of gender learning (Renzetti and Curran 1989:65). In this view,

children learn to process their world through interactions and observations of their social environment. This processing is done by the creation of mental categories or schema. These categories create guidelines for the child's actions. Thus, as children encounter stimuli it is placed in a mental category with similar stimuli (Renzetti and Curran, 1989:65; Basow, 1986:115-116).

Cognitive development theory is based on Piaget's notion of child development stages. Piaget believed that children go through four cognitive development stages. The first is called the sensorimotor stage. Here children are only aware of their world in terms of their limited abilities, such as crawling. In the second stage, Piaget believed that children begin to learn how to categorize their social environment. The third major stage is represented by the child's ability to perform concrete operations on their social environment. Examples of these concrete operations include the use of spatial perception abilities, which allow the child to judge such environmental aspects as height and weight. Children develop the capacity for abstract reasoning, the final stage in Piaget's development scheme, around age eight (Piaget cf. Basow, 1986:114).

Lawrence Kohlberg has adapted Piaget's stages of cognitive development to describe the acquisition of gender identity. According to Kohlberg, children go through a series of development. Awareness of the social environment is not

only a factor of environmental stimuli, but also of the stage of cognitive development. Children who are younger than four years old do not have an understanding of physical constancy. Before the age of five children have no concept of gender. However as they develop and learn to categorize their world, Piaget's stage two, they begin to interpret the stimuli within their environment which leads to a self-categorization of boy or girl. Around the ages of six and seven years old children's conception of sex are sharply divided into gender stereotypes. As the children move from the stage of concrete operations, around eight years old, their notions of gender become evident in their behavior (Basow, 1986:116-117; Renzetti and Curran, 1989:46).

Concurrent with development is the recognition of certain social categories or schema. Biological sex is one category that children learn to recognize early and easily. Many visual cues are available for categorization. For example, children learn to associate facial hair, low voices, and the male anatomy with the sex category of men.

Children first learn their personal identity, male or female. As children mature, the sex schema is applied further to others in their environment. With the classification of others comes the realization of what it means to be masculine and feminine. This discovery is coupled with the learning of gender appropriate behavior from their interactions with and observations of others in their social environment (Renzetti

and Curran, 1989:65-66; Basow, 1986:115-116).

COMPUTER USE RESEARCH

A recent front page article in The New York Times stressed the impact of socialization on the difference in computer use patterns. According to this article:

> Social scientists say women are generally socialized into behavior that leads them away from computers, mathematics and science. "There doesn't seem to be real differences between young girls and young boys in either their math ability or their ability to enjoy computers," said Joyce Hakanson, a Berkeley, California, educator who founded a software company to develop programs for children. 'It's not innate; it's really role models. When girls get to be junior high school age, it's not cool to be good at calculations or computation and things that are empowering'(February 13, 1989).

This article is supported by social science research which shows the dominance of boys in computer classes and camps (Hess and Miura, 1985). According to Maraine Lockheed (1984), boys represented substantially higher ratios in computer class enrollment. She found that the male to female ratio ranged from 5:1 to 2:1 in these computer courses. This difference was at its highest in courses which stressed computer programming. The National Longitudinal Study of 1980-1982 analyzed computer programming course enrollment. These data showed that only 41% of the students were female (Lockheed, 1985:117).

The amount of exposure to computers is seen as an

impacting factor in use patterns among boys and girls. In a California assessment of computer literacy, Mark Fetler (1985) examines the experiences and attitudes of California sixth- and twelfth-grade students. He finds that boys of both grades had more exposure to the computer at home and at school. He speculated that this explains higher levels of achievement in computer literacy by boys.

Even enrollment in summer camps designed around computers were dominated by boys. A study done by Hess and Miura (1985) found that the ratio of camp enrollment was three boys for every girl. The overall proportion was 73.8% boys and 26.2% girls. Hess and Miura (1985) also found that parents were more likely to encourage their sons to attend these computer camps than their daughters. This may be the result of the social value that it will be more beneficial for the boys' future careers to have the computer skills. These disproportionate enrollment statistics indicate that there are gender gaps in computer use (Hess and Miura, 1985:194-202).

One possible reason for the differences observed in usage, exposure, and interest in computers by boys and girls is the link of mathematics and science with the computer. This link is supported through encouragement by the socialization of the children to believe that mathematics and science are fields in which only men can excel (Hawkins, 1985:168). Historically men have dominated the fields of mathematics and science. Women have had few role models in

these areas. Hawkins even suggest that women are "explicitly and implicitly told that the long and dedicated hours and intense competition associated with these professions may conflict with the traditional feminine goals of family and children" (1985:168). This has an impact on women's interest and desire to learn about mathematics, science, and even computers.

Biological reasons for gender differences in math, science and computers have been found to have little impact on the actual abilities of the sexes. In 1984, Hyde found the differences in spatial ability to be virtually insignificant at younger ages. As children age, Hyde discovered that the gap in spatial ability widens (Hyde,1984 cf.Renzetti and Curran, 1989:91-92). This seems to indicate that spatial ability is not biologically determined. Another prominent study of the biological reasons for diversity in mathematics performance was done by Fennema and Sherman (1977). They examined the mathematics and spatial achievement scores of over twelve hundred ninth-grade students with comparable mathematics backgrounds. They found the difference in the scores to be related to the students' self-perception of their personal ability to learn mathematics (Fennema and Sherman, 1977 cf. Kramer and Lehman, 1990:160). Thus, the rationale behind biological differences between the sexes and mathematics, science, and computers fails to be a viable argument (Hawkins, 1985:169; Hess and Miura, 1985).

Many researchers have studied the different learning styles of men and women (Belenky, 1986; Nye, 1991:94; Turkle, 1984; Turkle and Papert, 1990). Different learning styles are believed to be a possible reason for the gender gap in computer attitudes and use. Sherry Turkle (1984) has termed the different learning styles as being "soft" and "hard". Females are predominantly soft learners. Soft learners see the computers interactively and conversationally. Soft learners interact with the computer with a flexible style. This flexible style includes intuition and subjective interaction (Belenky, 1986; Keller, 1985). Hard learners, usually males, perceive the computer as a tool. Hard learners follow the computer program in a hierarchial and rule oriented fashion. Computer programs, classes, and camps are oriented toward teaching and implementing hard learning styles over the soft (Nye, 1991:94; Hess and Miura, 1985:194-198). This hard learning orientation places pressure on soft learners to conform to a hard learning style. Since most of the software on the market is hard learner oriented, it not only disadvantages the soft learning style, it also deprives the hard learners from learning an alternative style (Wessells, 1990:247). Researchers, such as Paul Edwards (1990), believe this hard/soft dichotomy reinforces the popular stereotype of computers being only the domain of men. According to Edwards, media perpetuate this stereotype by exploiting the hard/soft dichotomy. He believes that when the media use catch phrases,

such as hard and soft, they exploit their meanings and effectively present the implied message that computers are for men. There are software programs, such as PRINT SHOP and LOGO, which are beginning to recognize the different styles. These programs use gender neutral terms and symbols in the programs. LOGO, for example, uses turtles instead of rockets for the on screen cursor. LOGO is attempting to provide a program free of any gender or style preferences. Other programs, such as Music Writer, attempt to give soft learners an opportunity to express their style in a fashion that does not rely on the hard learning style. Programs with gender neutral or soft learning styles also provide those who are hard learners the ability to use the computer in the context of the soft learning style (Nye, 1991:94-96).

SURVEY AND DATA

The empirical measurements for the current study are obtained from the October 1984 Current Population Survey (CPS). This survey was conducted as a supplement to the annual Current Population Survey. The CPS is a monthly survey of approximately 58,000 households across the United States. The survey was conducted by the United States Department of Commerce for the Bureau of the Census. It is a random sample of the civilian non-institutionalized population of the fifty states and the District of Columbia.

The October supplement asked questions regarding computer use in the United States. The current study uses a sub-sample of the survey population. This sub-sample consists of only those individuals who are thirteen years old or younger and have computers in their homes. In this sub-sample there were 4,326 children.

DEFINITION OF VARIABLES

Interviewers determined whether or not the home possessed a computer and then asked children about their use patterns. The Current Population Survey defines "use" as "direct or 'hands on' use of the computer with typewriter-like keyboards. Questions do not refer to hand held computers or computer games which have a typewriter keyboard" (CPS 1984)(See Appendix A for distributions). If the child answered "yes" then the frequency and different types of use were determined.

The frequency of use is grouped into average use per week, during the previous month. The amount of use at each session at the computer is not ascertained by CPS. This variable is collapsed into three smaller categories. The category of high frequency of use ranges from five to seven days per week. The second category, medium frequency of use, ranges from two to four days per week. Low frequency of use ranges from no use of the computer to one day per week (See Appendix A for distributions).

The CPS designates four different types of uses for the home computer: video games, school work, learning to use the computer, and other uses. Children are asked the different types of uses of their home computers. The children are asked their use patterns and the interviewer marks any positive response toward the use (CPS 1984) (See Appendix A for distributions).

The current study categorizes the control variables, age family income, race, purchase year of the computer, and computer use at school, to analyze their effect on home computer use by children. The control variable age includes three categories one and two years old, three years old through seven years old, and eight years old through thirteen years old (See Appendix A for distributions). Family income is the entire amount of capital, accumulated by the family, in a twelve month period prior to the interview. This variable is collapsed into three categories. The first category, low income, ranges from under five thousand dollars up to twelve thousand dollars. The second category, medium income, ranges from twelve thousand dollars up to thirty-five thousand dollars. The third category, high income, ranges from thirty-five thousand dollars and above (See Appendix A for distributions). The survey respondents are also classified by the CPS in three racial categories, white, black, or other. The racial category of other includes, according to the Current Population Survey, Indians, Japanese, Chinese, and any

other race except white and black. There is a wide gap between the number of white children (3,949) and black children (237) and children of other races (140) (See Appendix A for distributions). The variable, purchase year of the home computer is classified from 1980 and earlier through September, 1984. This variable is collapsed into two categories, computers bought before 1982 and those bought in 1982 through September, 1984 (See Appendix A for distributions). Children also are asked if they used a computer at school. The use or non-use of the computer at school also is used as a control variable (See Appendix A for distributions).

RESULTS

The summary of the research results will focus primarily on the size and sign of the correlation. The large size of the sample renders significance levels less meaningful.

H1: Boys are more likely to use the home computers than are girls. The results show a measure of association between gender and home computer use. The correlation (PHI=.10) is modest, but it supports the first hypothesis (See Table 1).

TABLE 1
THE ASSOCIATION BETWEEN HOME COMPUTER USE AND GENDER

COMPUTER USED AT HOME	MALE	FEMALE
YES	76.6	67.8

NO	23.4	32.2	
	100.0	100.0	100.0
	(2022)	(1688)	(3710)

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F.<5
35.65	1	0.00	462.72	NONE
36.09	1	0.00	(BEFORE YATES CORRECTION)	

PHI	SIGNIFICANCE
0.10	0.00

There is an 8.8% difference between male and female children who use home computers. Using the control variables, age, family income, race, purchase year of the computer, and computer use at school, there were no deviations from this relationship.

H2: Boys use home computers more frequently than do girls. The results are similar to those reported for hypothesis one (See Table 2).

TABLE 2
THE ASSOCIATION BETWEEN FREQUENCY OF HOME COMPUTER USE AND GENDER

DAYS OF COMPUTER USE PER MONTH	MALE	FEMALE	
5-7 DAYS A WEEK	20.9	12.7	
2-4 DAYS A WEEK	46.0	43.7	
NONE-1 DAY A WEEK	33.1	43.6	
	100.0	100.0	100.0
	(1507)	(1109)	2616

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F.<5
43.84	2	0.00	193.31	NONE

CRAMER'S V
0.13

The association between gender and frequency of use is modest but significant (V=.13). There is an 7.2% difference between male and female children who use home computers five to seven days a month. The greatest difference in the association between gender and frequency of use is evident when using the computer for one day or less per month. Girls use home computers 10.5% less frequently than boys when the computer is used one day or less per month.

H 3A: Gender will impact the use of the home computer to play video games. The results show that gender is slightly related to the use of the home computer to play video games (See Table 3).

TABLE 3
THE ASSOCIATION BETWEEN VIDEO GAMES AND GENDER

COMPUTER USED FOR VIDEO GAMES	MALE	FEMALE	
YES	53.3	44.2	
NO	46.7	55.8	
	100.0 (2355)	100.0 (1971)	100.0 (4326)

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F.<5
35.52	1	0.00	969.10	NONE
35.88	1	0.00	(BEFORE YATES CORRECTION)	

PHI	SIGNIFICANCE
0.10	0.00

This association shows that 53.3% of male children and 44.2% of female children use home computers to play video games

(PHI=.10). The difference between the two sexes is 9.1%. The control variables did not affect this relationship.

H 3B: Gender will influence the use of home computers to work on school assignments. The results show a weak relationship between gender and home computer use to do school assignments (PHI=.05, See Table 4).

TABLE 4
THE ASSOCIATION BETWEEN USE FOR SCHOOL ASSIGNMENTS AND GENDER

COMPUTER USED FOR SCHOOL ASSIGNMENTS	MALE	FEMALE	
YES	19.4	15.6	
NO	80.6	84.4	
	100.0 (2355)	100.0 (1971)	100.0 (4326)

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F.<5
10.26	1	0.00	348.55	NONE
10.53	1	0.00	(BEFORE YATES CORRECTION)	

PHI	SIGNIFICANCE
0.05	0.00

More boys than girls(19.4% and 15.6%, respectively) use the home computer for school assignments.

H 3C: Boys will use the home computer more than girls to learn to use the computer. The association stated in hypothesis 3C is weakly supported by the results (PHI=.05, See Table 5).

TABLE 5
THE ASSOCIATION BETWEEN USE FOR LEARNING TO USE THE COMPUTER AND GENDER

COMPUTER USED FOR LEARNING TO USE COMP	MALE	FEMALE
YES	47.8	42.8

NO	52.2	57.2	
	100.0	100.0	100.0
	(2355)	(1971)	(4326)

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F.<5
10.58	1	0.00	897.57	NONE
10.78	1	0.00	(BEFORE YATES CORRECTION)	

PHI	SIGNIFICANCE
0.05	0.00

Whereas 47.8% of boys and 42.8% use their home computers to learn how to use the computer, 42.8% of the girls do. The control variables did not affect this relationship.

H 3D: Gender will influence the use of home computers for other uses. The results are not significant (PHI=.02). There is not enough difference between males and females to support hypothesis 3D (Table 6).

TABLE 6
THE ASSOCIATION BETWEEN USING THE COMPUTER FOR OTHER USES AND GENDER

COMPUTER USED FOR OTHER USES	MALE	FEMALE	
YES	12.8	11.5	
NO	87.2	88.5	
	100.0	100.0	100.0
	(2355)	(1971)	(4326)

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F.<5
1.48	1	0.22	240.57	NONE
1.60	1	0.21	(BEFORE YATES CORRECTION)	

PHI	SIGNIFICANCE
0.02	0.10

The difference in use of home computers for other uses between males and females is only 1.3%. The control variables did not

influence this relationship.

DISCUSSION

The data and analyses, at best provide modest support for the three research hypotheses. There is a relationship between gender and computer use patterns. This relationship is not as strong as previous research would indicate.

This study provides modest support for the expected relationship between home computer use and gender. The sample is homogeneous and includes only those children thirteen years old and under who have computers in their homes. Most of the children in the sample were white and lived in families with middle to upper incomes (See Appendix A for distributions).

The proportion of boys who use home computers is less than nine percent greater than the proportion of girls who use home computers. Gender is more strongly related to the frequency of home computer use in hypothesis two. At low frequency of home computer use (none to one day per week), females were 10.5% more likely to use the computer than boys. As frequency of use increased to five through seven days per week, males became 7.2% more likely to use the computer than females. These findings are congruent with previous research on computer use by gender, although other research maintains that the division between male and female children would be wider based on the male child's strong identification with the

computer (Wilder, Mackie and Cooper, 1985).

Hypothesis 3A tests the use of the computer to play video games. The relationship between using the home computer to play video games and gender was modest. Male children were only 9.1% more likely to use the computer to play video games. Again this difference was not as distinct as previous research suggested.

For hypotheses 3B, using the computer to do school assignments, and 3C, use to learn how to use the computer, the results were substantially more ambivalent than the earlier research by Hawkins (1985) and Wilder, Mackie, and Cooper (1985) would predict. For hypothesis 3B there was only a difference of 3.8% between male and female children. This difference increased to 5.0% when the computer was used for learning to use the computer, hypothesis 3C. This increase to 5.0% is considerably less than the differences expected between the sexes on the basis of previous research.

The final hypothesis, using the computer for other uses, provided the weakest link between home computer use and gender. Only 12.2% of the 4,326 children used the computer for these purposes. There was only a 1.3% difference between male and female children. Previous research had indicated that using the computer for other uses would be more gender neutral than the other hypothesis because of its broader spectrum of possible uses (i.e. word processing, music editors, and graphic uses). This is supported by the

negligible difference between male and female children in the sub-sample.

The control variables age, race, income, purchase year, and computer use at school did not influence the main relationship between gender and home computer use.

The results of this study must be analyzed in the time frame of the survey used. The survey was conducted in 1984 when home computer ownership was relatively novel. The earlier theories of gender acquisition through biology, socialization, and cognitive development also are not strongly supported in this study. This study does not find any great disparity between males and females. With home computer ownership limited at the time of the survey this result could have occurred due to the computer being a new aspect of society and had not been stereotyped along gender lines.

This survey was repeated in 1990 by the United States Census. If the current study were repeated with the updated data, the results could possibly show more support for the relationship between gender and home computer use.

APPENDIX A

MARGINAL DISTRIBUTIONS OF VARIABLES

COMPUTER USED AT HOME

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
YES: COMPUTER USED AT HOME	1	2693	72.6
NO: COMPUTER NOT USED AT HOME	2	1017	27.4
MISSING	.	616	MISSING
TOTAL		4326	100.0

FREQUENCY OF HOME COMPUTER USE

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
HIGH FREQUENCY OF USE: 5-7 DAYS PER WEEK	1	456	17.4
MEDIUM FREQUENCY OF USE: 2-4 DAYS PER WEEK	2	1178	45.0
LOW FREQUENCY OF USE: NONE-ONE DAY PER WEEK	3	982	37.5
MISSING	.	1710	MISSING
TOTAL	4326	100.00	100.0

COMPUTER USED FOR VIDEO GAMES

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
YES: COMPUTER USED FOR VIDEO GAMES	1	2127	49.2
NO: COMPUTER NOT USED FOR VIDEO GAMES	2	2199	50.8
TOTAL		4326	100.0

COMPUTER USED FOR SCHOOL ASSIGNMENTS

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
YES: COMPUTER USED FOR SCHOOL ASS.	1	765	17.7
NO: COMPUTER NOT USED FOR SCHOOL ASS.	2	3561	82.3
TOTAL		4326	100.0

COMPUTER USED FOR LEARNING TO USE THE COMPUTER

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
YES: COMPUTER USED FOR LEARNING TO USE THE COMPUTER	1	1970	45.5
NO: COMPUTER NOT USED FOR LEARNING TO USE THE COMPUTER	2	2356	54.5
TOTAL		4326	100.0

COMPUTER USED FOR OTHER USES

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
YES: COMPUTER USED FOR OTHER USES	1	528	12.2
NO: COMPUTER NOT USED FOR OTHER USES	2	3798	87.8
TOTAL		4326	100.0

AGE DISTRIBUTION

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
1-2 YEARS OLD	1	616	14.3
3-7 YEARS OLD	2	1416	22.7
8-13 YEARS OLD	3	2294	63.0
TOTAL		4326	100.0

FAMILY INCOME

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
0 UP TO 12K	1	505	11.7
12K UP TO 35K	2	2459	56.8
35K AND ABOVE	3	1362	31.5
TOTAL		4326	100.0

RACE

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
WHITE	1	3949	91.3
BLACK	2	237	5.5
OTHER (ASIAN, INDIAN, HISPANIC, & ALL OTHER NON-BLACK & NON-WHITE)	3	140	3.2
TOTAL		4326	100.0

PURCHASE YEAR OF THE COMPUTER

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
1980-1981	1	245	5.8
1982-1984	2	4012	94.2
MISSING	.	69	MISSING
TOTAL		4326	100.0

USE OF THE COMPUTER AT SCHOOL

VARIABLE LABEL	VALUE	FREQUENCY	VALID PER
YES: COMPUTER USED AT SCHOOL	1	1412	41.7
NO: COMPUTER NOT USED AT SCHOOL	2	1977	58.3
MISSING	.	937	MISSING
TOTAL		4326	100.0

Bibliography

Babbie, Earl. Survey Research Methods. Belmont, California: Wadsworth Publishing Co., 1990.

Basow, Susan. Gender Stereotypes Monterey, California: Brooks/Cole Publishing Co.,1986.

Belenky, Mary Field, Women's Ways of Knowing: The Development of Self, Voice and Mind. New York: Basic Books, 1986.

Boudreau, Sennott. Sex Roles and Social Patterns. New York: Praeger 1986.

Cahill, Spenser. 1983. "Reexamining the Acquisition of Sex Roles: A Symbolic Interactionist Approach" Sex Roles 9(1):1-15.

Chetwynd, Jane. The Sex Role System: Psychological and Sociological Perspectives. London: Rutledge Press, 1978.

Chafetz, J.S. Masculine/Feminine or Human ? 2nd Edition. Itasca, Ill.:Peacock, 1978.

Constantinople, Anne. 1979. "Sex-Role Acquisition" Sex Roles 5(2):121-133.

Current Population Survey. Special studies - Series P-23 No. 155 - Computer Use In the United States : 1984.

Danzinger, James and Kraemer, Kenneth. People and Computers. New York: Colombia University Press, 1986.

Denzin, Norman. The Research Act. Third Edition. Englewood, New Jersey: Prentice Hall, 1989.

Donnelly, Dennis. The Computer Culture. London and Toronto: Associated University Presses Inc., 1985.

Dubin, Robert. Theory Building. New York: The Free Press, 1978.

Edwards, Paul. 1990. "The Army and the Microworld: Computers and the Politics of Gender Identity" Signs (Autumn) 49:124-138.

Eitzen, Stanley. In conflict and Order. Boston: Allyn and Bacon Inc., 1988.
Felter, Mark. 1985. Sex Roles 13:181-193.

Freeman, Jo. Women: A Feminist Perspective. New York: Mayfield Publishing Company, 1975.

Gutek, Barbara and Bikson, Tara. 1985. "Differential Experiences of Men and Women in Computerized Offices" Sex Roles 13 (3/4).

Hawkins, Jan. 1985. "Computers and Girls: Rethinking the Issues" Sex Roles 13 (3/4).

Hess and Miura. 1985. "Gender Differences in Computer Camps and Classes" 13 (3/4).

Keller, E.f., Reflections on Gender and Science. New Haven, Ct: Yale University Press, 1985.

Klein, Elisa. Children and Computers. San Francisco: Jossey Bass Inc., 1985.

Kramer, Pamela and Lehman, Shelia. 1990. "Mismeasuring Women: A Critique of Research on Computer Ability and Avoidance" Signs (Autumn) 158-172.

Krendl, Kathy, Broihier, Mary and Fleetwood, Cynthia. 1988. "Children and Computers: Do Sex-Related Differences Persist?" Journal of Communications 39 (3): 85-93.

Lee, Patrick and Stewart, Robert. Sex Differences. New York: Urizen Books, 1976.

Lipman-Blumen, Jean. Gender Roles and Power. Englewood Cliffs, New Jersey: Prentice Hall, 1984.

Lockheed, Marlaine E. 1985. "Women, Girls, and Computers: A First Look at the Evidence" Sex Roles 13 (3/4).

Markoff, John. "Computing in America: A Masculine Mystique"The New York Times February 13, 1990.

Miller, C.L. 1987. "Qualitative Differences Among Gender Stereotyped Toys" Sex Roles, 16:473-488.

Nye, Emily. 1991. "Computers and Gender: Noticing What Perpetuates Inequality?" English Journal 80(3):94-95.

Norusis, Marija. The SPSS Guide to Data Analysis for SPSSX. SPSS Inc., 1988.

Peretti, P.O. and Sydney, T.M. 1985. "Parental Toy Choice Stereotyping and its Effects on Child Preference and Sex-Role Typing" Social Behavior and Personality. 12:213-216.

Perry, Ruth and Greber, Lisa. 1990. "Women and Computers" Signs (Autumn):74-125.

Renzetti, Claire and Curran, Daniel. Women, Men, and Society: The Sociology of Gender. London: Allyn and Bacon, 1989.

Rheingold, H.L. and Cook, K.V. 1975. "The Content of Boys' and Girls' Rooms as an index of Parent's Behavior" Child Development 46:459-463.

Robertson, Ian. Sociology Third Edition. Worth Publishing: New York, 1987.

Sadker, M. and Sadker, K. 1985. "Sexism in the Schoolroom of the 80's" Psychology Today March:54-57.

Sanders, Jo. The Neuter Computer. New York: Neal-Schuman Publishers Inc., 1986.

Schaffer, Kay. Sex Roles and Human Behavior. Cambridge, Massachusetts: Winthrop Publishers Inc., 1981.

Shakin, M.D. 1985. "Infant Clothing: Sex Labeling for Strangers" Sex Roles 12:955-964.

Stasz, Cathleen, Shavelson, Richard, and Stasz, Clarice. 1985. "Teachers as Role Models: Are there Gender Differences in Microcomputer-Based Mathematics and Science Instruction ?" Sex Roles. 13 (3/4).

Turkle, Sherry. The Second Self London: Granada, 1984.

Turkle, Sherry and Papert, Seymour. 1990. "Epistemological Pluralism: Styles and Voices Within the Computer Culture" Signs (Autumn):128-157.

Turner, Jonathan. Sociology. Chicago: Nelson-Hall, 1985.

Turner, Jonathan. The Structure of Sociological Theory. Fourth Edition. Belmont, California: Worth Publishing Co. 1986.

Ware, Mary Catherine and Stuck, Mary Frances. 1985. "Sex-Role Messages vis-vis Microcomputer Use: A Look at the Pictures" Sex Roles 13 (3/4).

Weitzman, Lenore. "Sex-role Socialization in Picture Books

for Preschool Children" American Journal of Sociology. 77(6), May, 1972.

Wessells, Michael. Computer, Self and Society. Engelewood, New Jersey: Prentice Hall, 1990.

Wilder, Gita Mackie, Diane and Cooper, Joel. 1985. "Gender and Computers: Two Surveys of Computer-Related Attitudes" Sex Roles 13 (3/4).

Witting, Michele. Sex-Related Differences in Cognitive Functioning. New York, New York: Academic Press, 1979.

Vita

Trelles Whitfield D'Alemberte

Born in Chattahoochee, Florida, on October 15, 1968. Graduated from Chattahoochee High School in June 1986. Attended Rollins College, Winter Park, Florida, and graduated in 1990 with a Bachelor of Arts in Sociology. Entered the College of William and Mary in September 1990 as a graduate assistant in the Department of Sociology.